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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,180	05/30/2001	Kenneth L. Smith	54538USA9B011	7800
32692	7590	08/07/2006	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY			GOFF II, JOHN L	
PO BOX 33427			ART UNIT	
ST. PAUL, MN 55133-3427			PAPER NUMBER	

1733

DATE MAILED: 08/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/870,180

Applicant(s)

SMITH ET AL.

Examiner

John L. Goff

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the amendment filed on 5/23/06.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
4. Claims 22-25 and 28-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chau et al. (U.S. Patent 5,735,988) in view of Stamm (U.S. Patent 3,712,706), and either one of JP 04209686 (See also the abstract) or JP 08157793 (See also the abstract).

Chau et al. disclose a method for making a retroreflective, i.e. engineered reflective surface, article (Column 9, lines 39-48). Chau et al. teach the method comprises providing a base layer, forming a structured surface on the base layer, applying a reflective coating to the structured surface, applying an at least partially transparent, flowable, and radiation curable acrylic based epoxy adhesive to the structured surface, placing a substrate over the radiation

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curable adhesive, and curing the adhesive to form the retroreflective article (Figures 1C-1F and Column 5, lines 57-65 and Column 6, lines 1-19). Alternatively, Chau et al. teach applying the radiation curable adhesive by first coating the substrate and then, applying the coated substrate to the structured surface (Column 6, lines 20-21). Chau et al. are silent as to the structured surface comprising cube corner cavities. However, Chau et al. require a retroreflective surface topography, and Chau et al. specifically teach choosing the surface topography of the structured surface is well within the ordinary skill of one in the art (Column 5, lines 14-21 and Column 10, lines 1-5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the surface topography in the method taught by Chau et al. the surface topography comprising cube corner cavities as suggested by Stamm to create a retroreflective article having high retroreflective efficiency.

Stamm discloses a surface topography to produce retroreflective articles having high retroreflective efficiency. Stamm teaches forming a high efficiency retroreflective article through a method comprising providing a base layer, forming a structured surface comprising cube corner cavities separated on their top surface on the base layer, applying a reflective foil to the structured surface, and filling the structured surface with an optically transparent material (Figure 1 and the abstract and Column 2, lines 3-13 and Column 3, lines 35-55 and Column 5, lines 8-14 and Column 6, lines 38-45).

Chau et al. do not specifically teach the acrylic based epoxy adhesive is pressure-sensitive. However, one of ordinary skill in the art at the time the invention was made would have readily appreciated that acrylic based epoxy adhesives such as that taught by Chau et al. as

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modified by Stamm are pressure-sensitive as evidenced by either one of JP 04209686 or JP 08157793.

JP 04209686 and JP 08157793 specifically note acrylic based epoxy adhesives are pressure-sensitive (See the English abstracts).

Regarding claims 28 and 29, Chau et al. and Stamm do not specifically teach incompletely filling the cube corner cavities with adhesive. However, one of ordinary skill in the art at the time the invention was made would have readily appreciated that when applying the adhesive to the structured surface as taught by Chau et al. as modified by Stamm and either one of JP 04209686 or JP 08157793 some air would remain trapped and the cavities would be incompletely filled resulting in a later settling of the adhesive.

Regarding claim 30, Chau et al. and Stamm do not specifically teach the degree the radiation curable adhesive is cured/crosslinked prior to its application to the structured surface. Absent any unexpected results, one of ordinary skill in the art at the time the invention was made would have readily appreciated that an adhesive crosslinked to a higher degree prior to its application would reduce the processing/cure time required after its application and thus, improve production efficiency as it would apply to the radiation curable adhesive taught by Chau et al. as modified by Stamm and either one of JP 04209686 or JP 08157793.

5. Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chau et al., Stamm, and either one of JP 042096876 or JP 08157793 as applied to claims 22-25 and 28-36 above, and further in view of Rowland (U.S. Patent 3,810,804).

Chau et al., Stamm, and either one of JP 042096876 or JP 08157793 as applied above teach all of the limitations in claims 26 and 37 except for a specific teaching of using a releasable

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liner as the substrate. However, Chau et al. are not limited to any particular type of substrate, and Chau et al. are not limited to any particular retroreflective article. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the substrate taught by Chau et al. as modified by Stamm and either one of JP 042096876 or JP 08157793 a releasable liner as suggested by Rowland to form the retroreflective article such that it may be applied later, i.e. after its production, to a final substrate.

Rowland discloses a method for making a retroreflective article. Rowland teaches the method comprises providing a base layer having a structured surface, applying a reflective coating to the structured surface, applying a flowable, acrylic pressure-sensitive adhesive to the structured surface, and laminating a releasable sheet to the structured surface. Rowland further teaches removing the releasable sheet to mount the reflective material on a surface (Figure 3 and Column 4, lines 42-50 and Column 7, lines 63-70 and 74-75 and Column 8, lines 1-2 and the Examples).

Response to Arguments

6. Applicant's arguments with respect to claims 22-36 have been considered but are moot in view of the new ground(s) of rejection.

Applicants argue, "Acrylic based epoxy resins are not inherently or necessarily pressure-sensitive adhesives" and "The attached journal article entitled *New Coating Materials Prepared by Radiation-Induced Polymerization* supports this assertion by showing several graphs of the viscoelastic characteristics of various acrylic based epoxy resins. These graphs show acrylic

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based epoxy resins that have a modulus (and Tg) that would not provide pressure-sensitive properties.”.

The journal article does not support applicants assertion that acrylic based epoxy resins are not inherently or necessarily pressure-sensitive adhesives. The journal article relates to a coating comprising a silicone and vinyl prepolymer that undergoes vinyl polymerization and epoxy polymerization. The journal article fails to show the modulus or Tg of the coating, and the article does not specifically state the coating is not pressure-sensitive. Further, the coating is not simply an acrylic based epoxy but includes other polymers/monomers. Thus, it is unclear how a conclusion regarding the pressure-sensitive properties of an acrylic based epoxy can be made from the journal article. However, as shown above JP 04209686 and JP 08157793 specifically show one would expect an adhesive consisting of acrylic based epoxy has pressure sensitive properties

Applicants further argue, “At least one reason why many, if not most, acrylic based epoxy resins do not have pressure-sensitive adhesive properties is that forming a pressure-sensitive acrylic based epoxy resin requires careful selection of many variables. One such variable is the type and amount of the other monomers in the composition.”.

The references relate to an acrylic based epoxy adhesive not including any other monomers such as silicone as suggested by the journal article. JP 04209686 and JP 08157793 specifically show an adhesive consisting of acrylic and epoxy has pressure sensitive properties. Thus, one would expect the acrylic based epoxy adhesive taught by Chau et al. to be pressure-sensitive. If applicants maintain the assertion that acrylic based epoxy resins do not necessarily have pressure-sensitive properties applicants should support that assertion with a showing of an

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acrylic based epoxy adhesive not including other monomers specifically demonstrating the adhesive is without pressure-sensitive properties.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

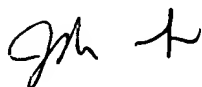
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(571) 272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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